SD11
.P921
1970

Library-file
~~Ogden~~ RSS

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Copeland } have copies
Hellmers }

1970

1970 ANNUAL REPORT

Priest River Experimental Forest

by

Calvin L. Carpenter

Intermountain Forest and Range Experiment Station
Ogden, Utah

6200-7 (6/65)

U.S. GOVERNMENT PRINTING OFFICE : 1965 O—777-887

1970 ANNUAL REPORT

Priest River Experimental Forest

by

Calvin L. Carpenter

Distribution:
Ogden
Wellner
Copeland
RWU 1201
RWU 1601
RWU 2303
NFFL
Kaniksu SO
Falls RS
PREF

Intermountain Forest and Range Experiment Station
Ogden, Utah

TABLE OF CONTENTS

	Page No.
RESEARCH ACTIVITIES	1
Timber Management	1
Genetics	1
Watershed Management	1
Forest Disease	2
Forest Insect	2
Wildlife Habitat	2
Forest Influences	3
ADMINISTRATIVE ACTIVITIES	7
Fire Protection	7
Forest Roads	7
Timber Sales	7
Headquarters Improvement & Maintenance	9
Local Personnel	11
Meetings, Group Visits and Inspections	12
Other Official Visitors	14
Cooperation	15
Information Map	16

INTRODUCTION

Progress in the research projects at Priest River Experimental Forest during 1970 proved to be increasing. Continuation of the intensive study programs necessitated opening and expanding new sites for follow-up on major management objectives and the initiation of new project studies. (See info. map)

Following is a resume of the activities for the 59th consecutive year of operation.

RESEARCH ACTIVITIES

Timber Management Research

Additional thinning was done in the Benton Creek transect, for the purpose of improving the spacing and stand density comparisons enitially established in 1967. The remaining trees of a pruning test (INT-1201-399) begun 1942 at the Deception Creek and Priest River Experimental Forests were cut this year, and bole sections that included pruned whorls were taken for analyses of pruning wound healing rates and decay incidence. Both ponderosa pine and western white pine were included in the study trees at Priest River.

Genetics Research

The contract for the Ida Creek Timber Sale was awarded, and executed, with follow up by Steinhoff in site preparation of that area, as well as of Unit A of the Lower Benton Creek Sale; a total of approximately nine acres.

All trees in the V.Q. plot (INT-1401-456) were examined for blister rust cankers, and an identification tag was placed on each study tree.

A small 1 1/2-acre area adjacent to the existing nursery site was cleared, and final preparations for planting were completed in the fall. A genetic study of Douglas-fir and western white pine will be initiated in the spring of 1971. Seed cones were also collected for geographic variation studies in Douglas-fir.

Regular periodic observations of plot 162 were made during the summer season by R. Steinhoff.

Watershed Management Research

Four new stations were added to the network of snowmelt lysimeters. Two were placed farther out in the large clearcuts to check against the others that are located near the timbered borders. The other two were placed under the timber, with a 60-to-80-percent canopy.

All existing lysimeters were remodeled from horizontal frames to percent-of slope frames. All precipitation gages were also remodeled to percent-of-slope orifices.

Permanent snowcourse stakes were placed along the Fox Creek snowcourses.

The main water supply line from the spring at Benton Spring, was relaid, because of the freezing problem of the previous year.

Watershed research broadened its program to include a new study dealing with the impact of prescribed burning on the quality of surface water. Sample stations were placed at inflow, midflow,and outflow in burned areas. Samples are collected in two drainages (Ida Creek and Benton Creek) at varying time intervals and placed in deep freeze. A graduate student from the College of Forestry, University of Idaho is doing the chemical analyses under a cooperative study with Prof. George Belt.

Investigation of snow interception and evaporation losses in sapling trees was resumed again this year, in a cooperative study between W.S.U. and RWU 1601. The study of "closed cover over forest" was still active under the same program. Lack of funds caused George Belt to postpone his winter radiation balance research for the remainder of the season.

Observation points were marked at 1000-foot elevations on north and south slopes in clearcuts and timbered locations up Benton Creek to help detect the rate of disappearance of snowpack.

Forest Disease Research

The regular annual observations were made in the natural inactivation (of blister rust cankers) plot, which was established in 1967 by RWU 2303.

The nursery site plantings which are being used in tests of host specificity and age susceptibility to dwarf mistletoe infections had the usual maintenance check during the year. Irrigation, weed control, and periodic observations were made by the Experimental Forest superintendent.

Forest Insect Research

Follow-up examinations of malathion-sprayed western larch were made. This study of the larch casebearer was established in 1967 to determine the effects of repeated western larch defoliations.

Wildlife Habitat Research

The area located between Center Ridge and South Ridge roads, on the Lower Benton Timber Sale, was prescibe-burned. The stands 09,08,06, and 05 of the Vegetal Development Study are now ready to mark and proceed with the RWU's objectives.

Forest Influences

Control Weather Station

Recordings taken daily at the headquarters adhered very closely to the normal established in the last 59 years (Table 1). Observations have been taken at this station since 1912, and are continuous and unbroken. Requests for specific data are furnished annually to varied other agencies, private industry, and private individuals.

Cumulative precipitation for the 1969-1970 "~~waste~~ water year" is graphed in Figure 1, together with the comparative trends for the wettest year, driest year, and the 50-year mean.

Other long-term records of precipitation have been maintained at Benton Spring. Monthly totals for the three stations for 1970 and for the past 11 years are presented in Table 2.

Fire Weather Station

Daily observations beginning May 1 and terminating October 31 continued to be taken in strict compliance with regulations set up by the National Fire Danger Rating System. Results of the daily readings are relayed to the Falls Ranger Station at 1600. The regular 10-day reports are mailed to the fire dispatcher at the Supervisor's Office in Sandpoint, Idaho.

Snow Survey

The Benton Spring and Benton Meadow snow courses were measured monthly by Experimental Forest personnel beginning Jan. 1 and continuing until the end of snow melt at the higher elevations (Table 3). These observations are conducted in cooperation with the Soil Conservation Service, headquartered at Boise, Idaho.

TABLE I.- CONTROL STATION MONTHLY PRECIPITATION AND TEMPERATURE - 1970.
FIGURES IN PARENTHESES ARE 50-YEAR (1912-1961) AVERAGES.

	Precipitation		Temperature			
			Ave. Max.		Ave. Min.	
	Inches		----------Degrees F.----------			
January	6.87	(4.02)	28.3	(30.3)	18.5	(16.6)
February	3.77	(3.09)	38.4	(36.4)	22.7	(18.3)
March	2.17	(2.65)	43.7	(45.3)	22.2	(23.5)
April	1.41	(2.04)	48.3	(57.6)	28.6	(29.6)
May	1.49	(2.18)	68.1	(66.7)	37.0	(36.6)
June	2.06	(2.27)	77.5	(73.5)	47.4	(42.5)
July	.53	(o.89)	84.0	(83.1)	50.0	(45.5)
August	.12	(0.97)	86.1	(82.0)	43.4	(43.4)
September	2.20	(1.67)	67.1	(70.4)	37.1	(37.4)
October	3.31	(2.96)	53.6	(56.6)	30.5	(32.1)
November	2.28	(3.76)	38.5	(39.6)	26.6	(26.7)
December	4.15	(4.37)	30.4	(32.5)	20.5	(21.1)
ANNUAL	32.28	(30.87)	55.3	(56.1)	32.0	(31.0))

TABLE 2. PRECIPITATION AT 3 STATIONS ON BENTON CREEK. FIGURES IN PARENTHESES ARE 11-YEAR (1960-1970) AVERAGES

Month	Control Stn. (Elev. 2344')		Benton Dam (Elev. 2640')		Benton Spring (Elev. 4700')	
	Inches					
January	6.87	(4.60)	6.98	(5.37)	6.40	(4.42)
February	3.77	(2.74)	3.80	(2.90)	5.40	(3.62)
March	2.17	(2.93)	2.34	(3.13)	1.60	(3.41)
April	1.41	(1.99)	1.49	(2.16)	2.20	(2.70)
May	1.49	(2.48)	1.60	(2.56)	2.20	(3.29)
June	2.06	(2.05)	2.15	(2.21)	3.30	(2.72)
July	.53	(o.75)	o.50	(0.79)	0.90	(0.99)
August	.12	(0.13)	0.08	(1.49)	0.20	(1.58)
September	2.20	(1.59)	2.15	(1.53)	2.50	(1.55)
October	3.31	(2.70)	3.15	(2.55)	3.40	(2.84)
November	2.28	(4.66)	3.11	(4.86)	3.30	(4.84)
December	6.07	(4.65)	6.21	(5.24)	6.60	(5.43)
ANNUAL	32.28	(31.27)	33.56	(34.79)	38.00	(37.39)

Fig. 1--CUMULATIVE PRECIPITATION FOR WATER YEAR, OCTOBER THROUGH SEPTEMBER
PRIEST RIVER EXPERIMENTAL FOREST, CONTROL WEATHER STATION

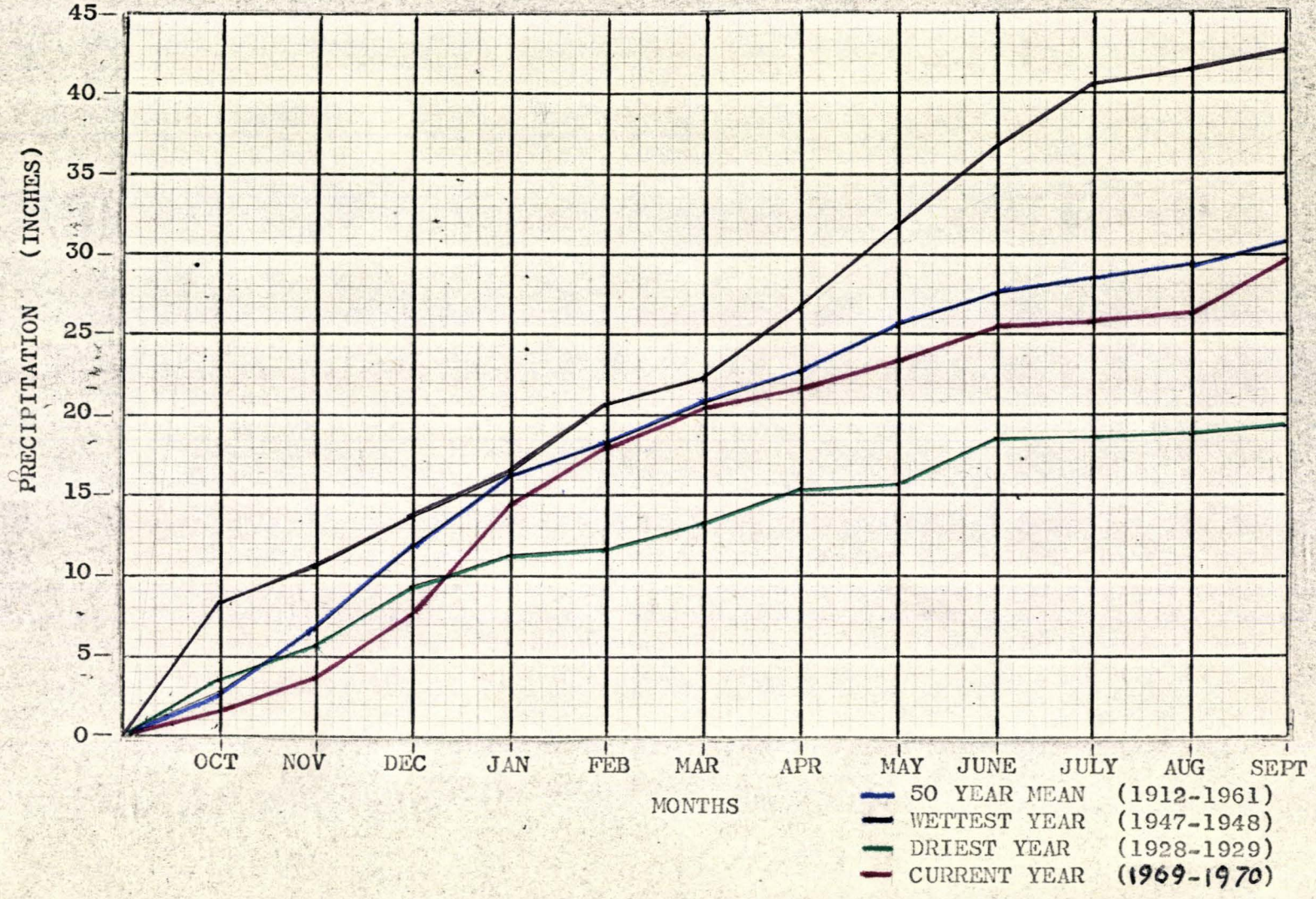


TABLE 3. SNOW DEPTH AND WATER CONTENT AT BENTON MEADOW AND BENTON SPRING SNOW COURSES, 1970. FIGURES IN PARENTHESES ARE 27-YEAR (1937-1961) AVERAGES.

Date	BENTON MEADOW (Elev. 2344')		BENTON SPRING (Elev. 4775')	
	Snow depth	Water content	Snow depth	Water content
	Inches			
January 1,	9.9 (12.0)	2.4 (2.7)	18.1 (30.9)	3.8 (8.4)
March 1,	25.3 (19.3)	8.8 (6.0)	66.0 (55.3)	19.0 (18.4)
April 1,	15.8 (6.2)	6.1 (2.3)	57.2 (55.6)	20.8 (20.4)
May 1,	0.0 (0.0)	0.0 (0.0)	53.1 (34.0)	18.5 (14.8)

ADMINISTRATIVE ACTIVITIES

Fire Protection

Annual review of the fire plan was made, and found to be satisfactory. The contents consist of the applicable portion of the Falls District plan, the outline of the Experimental Forest responsibilities, and provides an action plan for the headquarters area.

One fire was reported 7/17/70 at 0800. It was named "Canyon Creek Fire"; location: NWNE Section 29, T58N, R3W; discovered by F. S. personnel, Gisborne L. O. Fire was class A category, with one tenth acre burned. Control time: 1500, 7/17/71.

Forest Roads

The regular seasonal road maintenance included grading of Main Benton, South Ridge to Gisborne L.O., Center Ridge, A-3, and A-2. A-2 required brush removal. This service was provided by Kaniksu National Forest equipment and operators.

National forest road construction money was allocated toward completion of road G along the northern side of the Experimental Forest this fiscal year. A contract for this is to be let in late spring of 1971.

Timber Sales

North Ridge (Georgia-Pacific Lumber Co.) The sale area, totaling about 280 acres, lies in the northeast corner of the Experimental Forest. There will be 3.46 miles of new road construction(U1, U2, U3, U4, T4, and T5) and 4.55 miles of reconstruction on the Center Ridge road. Gross sawtimber volume to be cut is estimated at 1 1/2 million board feet.

There are 4 cutting units involved, each of which will be cut by a different method. The unit assigned to be clearcut will have all unmerchantabl material yarded to concentration points ("YUM" system). Seedtree and shelterwood cutting units will each be divided in half for assignment of 2 different slash disposal methods: lopping and scattering vs. piling and burning. The fourth unit, to be cut by group-selection amounting to about 1/3 of the area, will have openings of varying size that range from about 1/2-acre to 2 acres. For some of the openings, trees around the perimeter will be thinned to leave preferred individuals. Also, in some cases slash will be lopped and scattered, and dozer-piled in others. There was no activity on this sale in 1970.

Ida Creek (Diamond National) A 6 1/2-acre tract in the northwest corner of the Experimental Forest between roads Q1 and Q11 was clearcut to provide a site for a low-elevation replication of the reciprocal outplantings of western white pine originating from different elevational sources (study being established by Ray Steinhoff). The estimated gross volume removed was about 163,000 board feet including that from the smaller area noted below). Slash on the lower and flatter portion of the sale area was windrowed prior to prescribed burning in the fall of 1970.

In conjunction with this cutting, a small 1 1/2-acre area adjacent to the west side of the existing nursery site was clearcut and stumps removed to provide additional space for raising Douglas-fir seedling stock to be used in ecotypic studies of that species by Jerry Rehfeldt.

PREF Right-of-way (East River Lumber Co.) New roads (LI, L2, L3, K8, M3, and M4) that were constructed with appropriated funds in the fall of 1969 passed through stands of heavy timber. Time limitations then did not permit salvage of the right-of-way timber, so it was picked up in this 1970 sale. The salvaged volume totaled about 500,000 board feet.

Lower Benton Salvage (James L. Norton and J. Naccarato). About 55,000 board feet and 1000 cedar posts were salvaged in these two operations within Unit A of the Lower Benton Sale area (Hedlund, 1966).

Lower Canyon Creek Salvage (Dennis Needs). This sale of about 100,000 board feet of salvage material wound up the long series of logging operations in lower Canyon Creek begun by McDonald in 1965.

Headquarters Improvements & Maintenance

The regular summer season maintenance of the headquarters grounds area is summarized as follows: Annual spring clean-up, landscaping, irrigation lawn mowing, weed control, application of calcium chloride for dust control, pruning, thinning, and blister rust "flag" removal. The areas which were pruned and thinned were east of Lodge (Cott. #1), east and south of Cott. #4, and the main road frontage near the headquarters entry. Blister rust flags (infections) were removed along headquarters entry road and within the headquarters area.

The semi-annual culinary water samples were collected January 1, 1970, and June 1, 1970 and submitted for bacteriological quality test by the Idaho State Health Department. No contamination was found.

The periodic sewer system checks were made as proposed in 1968. The system proved to be functioning properly. Kaniksu National Forest equipment and operator opened access to the septic tank and the septic tank was pumped 10/17/70. All brush and vegetation was removed from lagoon banks, and along the discharge line. Fence surrounding the perimeter was restabilized with addition of steel posts and re-stretched woven-wire.

Buildings

(a) Office: Minor plumbing repairs were necessary throughout the building. The main entry was repainted.

(b) Bunkhouse - Messhall: Kitchen counter tops were recovered. TThe hot water tank heating elements were replaced, as were the screens for all windows and doors. All exterior wood-trim was repainted.

(c) Cottage #1 (Lodge): The wall was repaired and insulation was installed around exposed water pipes in the garage. A weatherproof cover was installed around the power cable conduit access. Repair of the masonry construction at the front entry was necessary due to freeze breakage.

(d) Cottage #2: Repair and replacement of water and sewer lines, was made during early spring, when facilities were opened for summer use. New screen was installed in front and back outside doors.

(e) Cottage #3: Freeze damage necessitated repair of masonry at the front entry. Touch-up paint was applied on exterior trim. Minor roof repairs were made.

(f) Cottage #4: A wall-to-wall carpet was installed, the kitchen, back porch, and basement stairway were thoroughly cleaned and repainted. New curtains were purchased for the back porch. Minor repairs to the roof and plumbing were also required.

(g) Shop: The exterior trim was repainted and a concrete slab ramp was poured in front of the main entry sliding door.

(h) Gas & Oil Storage Shelter: All exterior wood trim was refinished. Hanger posts were replaced for the sand barrel located nearby.

(i) Woodshed: The structure was restabilized and the exterior refinished.

(j) Several loads of gravel were needed to backfill low spots in the headquarter roads.

(k) Two-Car Garage: Several 2 x 4's were required to reinforce the rafters.

(l) Regular safety inspections were conducted throughout the year.

(m) The old garbage pit was covered with backfill, and a new trench was excavated and subsequently maintained in accordance with new environmental control specifications.

M

Local Personnel

Position	Dates	Name
Superinintendent	1/30/65-present	C. Carpenter
Forestry Res. Tech. W.M.R.	8/19/64-present	Bud Jeffers
Forestry Aid T.M.R. & W.M.R.	6/11/71-9/11/71	Frank Salinas
Forestry Aid T.M.R.	5/16/71-8/28/71	John Boncz
Forestry Tech. W.M.R.	12/1/69-5/7/70	Richard Brown 1/
Maint. Asst.	Intermittent	Jane Knoke

1/ On loan from Falls Ranger District to assist R. W. U. 1601 with the extra work load through the winter and early spring months.

Meetings, Group Visits, and Inspections

Feb. 18	A watershed Management field tour was conducted by Harold Haupt and Bud Jeffers for a news feature story. Those attending included Spokane Daily Chronicle representatives James Dulenty and Klint Walker, Paul Barker of the Kaniksu Nat. Forest, and Alden Kimsey, Station assistant editor from Ogden.
March 25	Examination and inspection of two prospective planting sites, one in the Ida Creek drainage and the other adjacent to the nursery area. Those attending were Glenn Deitschman, Ray Steinhoff, Ed Wicker, J. Rehfeldt, Dale Coffen,(Moscow FSL), Ted Kardos, (Falls District) and Cal Carpenter.
April 2	Inspection of cooperative WMR activities. George Belt and Myron Nolman, U. of Idaho.
April 6	Inspection of cooperative WMR activities. Don Satterlund, W.S.U.
May 8	Conservation Tour, by the Inland Empire District, Washington State Federation of Garden Clubs. 120 members traveling from Reardon and spokane. Tour leaders were Elmer Luer and Vandella Gordon, Forest Service, and Mrs Virgil R. Rux, Wash. State Federation of Garden Clubs. Commentators were C. Troxel & John Joy, Priest Lake Ranger Dist, Don Oman, Falls Ranger Dist., Ray Boyd, F.S.L. Moscow.
May 13-14	GFI (FDR FIR). John Ohman and Robert Thatcher (WO), C. Wellner (Ogden), Dick Bingham, Don Leaphart, Ed Wicker, Dick Washburn, Mal Furniss, Dick Schmitz, and Bob Denton (Moscow).

May 23-24	WSU field ecology class (19 students).
July 10	U. of Idaho ecology class (15 students). Tour led by Ray Boyd.
June 3-4, 1970	Habitat-type training seminar for Kaniksu field personnel. Instructors were Bob Pfister and Glenn Deitschman (INT), and Clarence Brown and Danny On R-I).
July 9, 1970	Natural Resources Field Trip for 80 Whitworth College students. Conducted by Ray Boyd.
July 21, 1970	Inspection of proposed timber sale areas and present road conditions. Glenn Deitschman, M. Foiles, Ray Boyd (Moscow) and Cal Carpenter.
July 24-25, 1970	General forest progress inspection by C. Wellner.
Sept. 14-15, 1970	GFI (TMR). Karl Wenger and Bob Romancier (WO), Joe Pechanec and Chuck Wellner (Ogden), Glenn Deitschman Marvin Foiles, and Ray Boyd (Moscow) and Cal Carpenter.
Sept. 23, 1970	WMR tour for 12 Utah State Univ. students by Harold Haupt.
Sept. 25,26,27, 1970	West Coast Mycological Foray. 86 to 100 participating. Ed Tylutke, U. of Idaho, was chief coordinator.
Oct. 28, 1970	Kaniksu NF Advisory Board visit. Tour of TMR and WMR activities led by Glenn Deitschman and Harold Haupt.
Dec. 2. 3. 1970	WMR discussion and tour for U. of Idaho students. Conducted by Harold Haupt and George Belt (U. of Idaho).
	Safety inspections numbered 5 during the C. Y. of 1970.

Official Visitors

Dates	Visitors	Purpose
Jan. Feb. Mar.	Boyd Hill (W.S.U.) (Intermittent)	Assist with snow interception studies.
Jan. 22-23	Geo. Belt (U of I)	Snow interception and evaporation studies.
Mar. 24	Tim aldrich (Kanicksu S.O.) Larry White (Falls)	P.R.E.F. facility tour & get acquainted " visitation.
April 2-3	George Belt (U of I) M. Molnau	Snow interception and Evaporation studies.
April 6, 7, 8	D. Satterlund (W.S.U.)	Supervise and observe snow interception study.
April 15-16	Geo. Belt (W.S.U.)	Snow interception and evaporation studies.
May 4	Don Satterlund (W.S.U.)	Snow interception study
Dec. 29-30	D. Satterlund (W.S.U.) G. Belt (U. of I.) M. Gibson (U. of I.) M. Molnau (U. of I.)	Tour and examination of cooperative studies for the coming winter season.

Cooperation

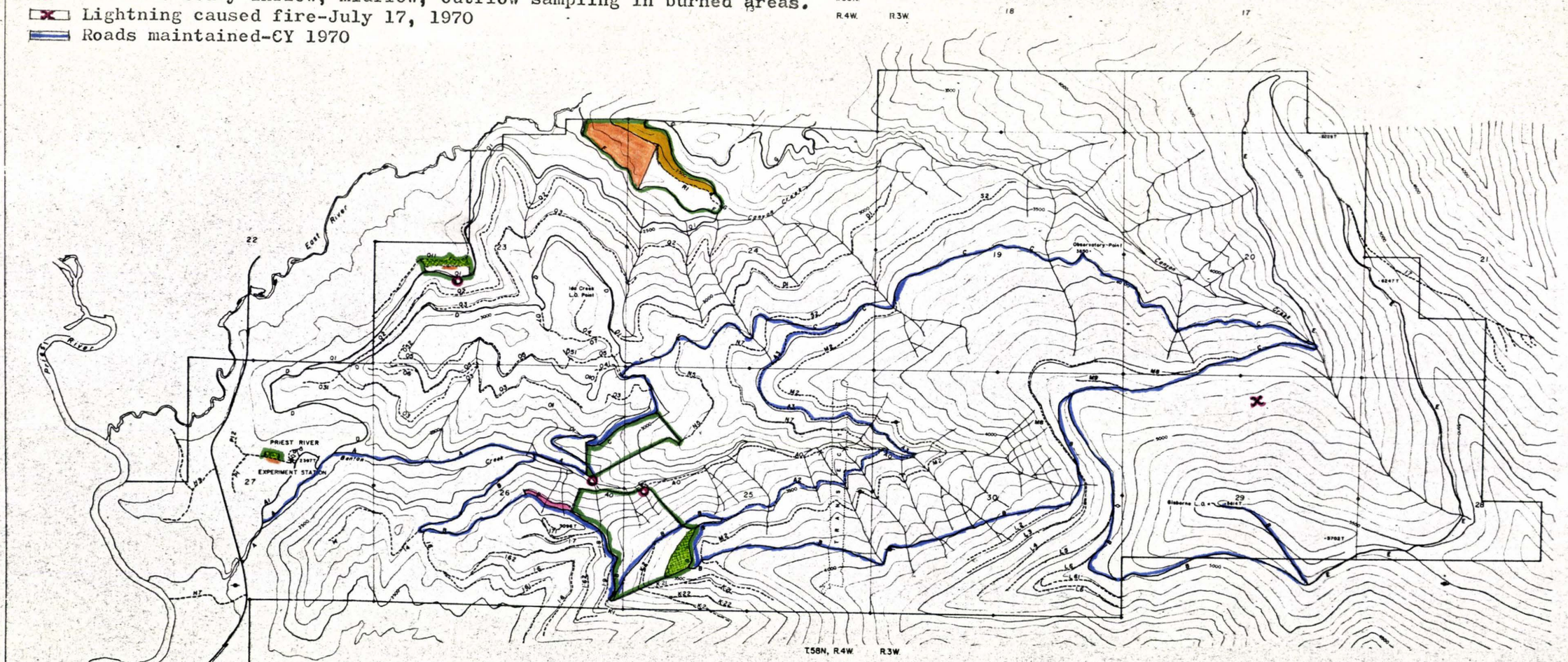
As in the past, the Kaniksu National Forest rendered needed assistance and technical advice. The Falls District headed by Ranger Lloyd Swanger administered timber sales, road layout and maintenance, sign installation and maintenance, control burns, etc. The annual meeting between Station and National Forest staffs on PREF management for 1970 had to be postponed until a later date. A resume of this meeting will appear in the 1971 annual report.

1970 proved to be another year of good progress, with much credit owed to continued good relationships and understanding with the Kaniksu personnel. As one example, route signs for snowmobile travel were installed last February by the District in an effort to better control travel by these vehicles where active research is taking place.

Sediment Study-inflow, midflow, outflow sampling in burned areas.

Lightning caused fire-July 17, 1970

Roads maintained-CY 1970



Nursery Addition-clear cut, slashed, dozer piled, prescribe burn, 100% disposal, for genetic study in WWP & DF.

Ida Creek Timber Sale-clear cut, slashed, dozer piled, prescribe burn.

Site prep. approx. 3 acres, 100% disposal, for planting study of various elevational sources of WWP.

Canyon Creek Timber Sale-slashed, 50% dozer piled, prescribe burn.

Seed Tree Cut

Seed Cone Collection-Geographic Variation Study

Unit A, Lower Benton Timber Sale-slashed, prescribe burn.

Unit B, Lower Benton Timber Sale-slashed, prescribe burn.

Site prep. approx. 9 acres, for planting study of various elevational sources of WWP.

PRIEST RIVER EXPERIMENTAL FOREST

KANIKSU NATIONAL FOREST
IDAHO
CONSTRUCTED 11-7-67
CONTOUR INTERVAL 100'
SCALE 1:7920 8"=1 MILE

PRIMARY ROAD
SECONDARY ROAD
CLIMATIC STATIONS
COMPLETE
PRECIP ONLY
SNOWCOURSE